What is claimed is:

1 1. An optical disc comprising:

2   a data area in which a data pit string corresponding

3 to recorded digital data is formed, the data pit string including

4 concave parts, convex parts, and a certification pit, the

5 certification pit certifying that the recorded digital data

6 is original,

7   wherein a length of each of the concave parts and convex

8 parts satisfies a predetermined rule, and

9   a length of the certification pit does not satisfy

10 the predetermined rule.

1 2. The optical disc of Claim 1,

2   wherein the predetermined rule is based on a run length

3 limitation method that encodes the digital data so that a zero

4 bit sequence is obtained, a total number of zero bits in the

5 zero bit sequence being within a range from a first number

6 of zero bits to a second number of zero bits,

7   the length of each of the concave parts and convex

8 parts is within a range from a first length to a second length,

9 the first length and the second length respectively

10 corresponding to the first number and the second number, and

11   the certification pit is a concave part or a convex

12 part, the length of the concave part or the convex part being

13 less than the first length.

38

1   3. The optical disc of Claim 2,

2   wherein the run length limitation method is an 8-16

3   modulation method that encodes the digital data by replacing

4   each set of 8 bits of the digital data with a data piece of

5   16 bits.

1   4. The optical disc of Claim 3 further comprising:

2   a specific area that records information showing a

3   location and a length of the certification pit.

1   5. The optical disc of Claim 1,

2   wherein the predetermined rule is based on a run length

3   limitation method that encodes the digital data so that a zero

4   bit sequence is obtained, a total number of zero bits in the

5   zero bit sequence being within a range from a first number

6   to a second number,

7   the length of each of the concave parts and convex

8   parts is within a range from a first length to a second length,

9   the first length and the second length respectively

10 corresponding to the first number and the second number, and

11   the certification pit is a concave part, the length

12 of the concave part exceeding the second length.

1   6. The optical disc of Claim 5,

2   wherein the run length limitation method is an 8-16

3   modulation method that encodes the digital data by replacing

4   each set of 8 bits of the digital data with a data piece of

5   16 bits.

1   7. The optical disc of Claim 6 further comprising:

2   a specific area that records information showing a

3   location and a length of the certification pit.

1   8. The optical disc of Claim 1,

2   wherein the predetermined rule is based on a run length

3   limitation method that encodes the digital data so that a zero

4   bit sequence is obtained, a total number of zero bits in the

5   zero bit sequence being within a range from a first number

6   to a second number,

7   the length of each of the concave parts and convex

8   parts is within a range from a first length to a second length,

9   the first length and the second length respectively

10   corresponding to the first number and the second number, the

11   concave parts and convex parts being coated with a reflection

12   layer, and

13   the length of the certification pit exceeds the second

14   length and the certification pit includes a concave part and

15   an uncoated convex part from which the reflection layer is

16   removed.

1   9. The optical disc of Claim 1,

40

2   wherein the predetermined rule is based on a run length

3   limitation method that encodes the digital data so that a zero

4   bit sequence is obtained, a total number of zero bits in the

5   zero bit sequence being within a range from a first number

6   to a second number,

7   each of the concave parts and convex parts is coated

8   with a first reflection material, and

9   the certification pit is covered with a second reflection

10   material, a reflection factor of the second reflection material

11   being lower than a reflection factor of the first reflection

12   material.

1   10. An optical disc comprising:

2   a processed area that has been processed with a laser,

3   wherein an area of the optical disc other than the

4   processed area includes concave parts and convex parts, each

5   of which has a length within a range from a first length to

6   a second length and is coated with a reflection layer, and

7   the processed area includes a first concave part or

8   a first pit string, the first concave part having a length

9   exceeding the second length, and the first pit string having

10   a length exceeding the second length and including concave

11   parts and uncoated convex parts from which the reflection layer

12   is removed.

1   11. The optical disc of Claim 10 further comprising a specific

41

2 area,

3   wherein the processed area further includes a second

4 pit string that has a length exceeding the second length and

5 includes a convex part on which a reflection layer having a

6 length less than the first length exists,

7   the first concave part or the first pit string is

8 distinguished from the second pit string by comparing a level

9 of an RF signal obtained from the processed area with a first

10 threshold value and a second threshold value, and

11   the specific area records information showing a location

12 and a length of the first concave part or the first pit string.

1 12. The optical disc of Claim 11,

2   wherein an RF signal obtained from the second pit string

3 has a level that remains above the first threshold value but

4 below the second threshold value, and

5   an RF signal obtained from the first concave part or

6 the first pit string has a level that remains below both of

7 the first threshold value and the second threshold value,

8   wherein the first threshold value is obtained by

9 subtracting a predetermined offset from a certain threshold

10 value used to convert an RF signal into a binary signal, and

11   the second threshold value is obtained by adding the

12 predetermined offset to the certain threshold value.

1 13. A reproduction apparatus that reproduces an optical disc,

42

2   comprising:

3   a signal reproduction means for generating an RF signal

4   by reading a pit string on the optical disc using laser light;

5   a first binary signal generating means for converting

6   the RF signal into a first binary signal using a first threshold

7   value, the first binary signal including a plurality of high

8   sections and a plurality of low sections, each high section

9   corresponding to a convex part having a length within a range

10   from a first length to a second length or a certification convex

11   part having a length less than the first length;

12   a second binary signal generating means for converting

13   the RF signal into a second binary signal using a second threshold

14   value, the second binary signal including a plurality of high

15   sections and a plurality of low sections, each high section

16   corresponding to a convex part having a length within the range

17   from the first length to the second length;

18   an EX-OR calculation means for calculating an exclusive

19   OR of the first binary signal and the second binary signal;

20   and

21   a judging means for judging, according to the calculated

22   exclusive OR, whether certification convex parts exist on the

23   optical disc with a predetermined distance therebetween.

1   14. A reproduction apparatus that reproduces an optical disc,

2   comprising:

3   a signal reproduction means for generating an RF signal

43

4   by reading a pit string on the optical disc using laser light;

5   a first binary signal generating means for converting

6   the RF signal into a first binary signal using a first threshold

7   value, the first binary signal including a plurality of high

8   sections and a plurality of low sections, each high section

9   corresponding to a convex part having a length within a range

10   from a first length to a second length or a certification convex

11   part having a length less than the first length;

12   a second binary signal generating means for converting

13   the RF signal into a second binary signal using a second threshold

14   value, the second binary signal including a plurality of high

15   sections and a plurality of low sections, each low section

16   corresponding to a concave part having a length within the

17   range from the first length to the second length or a

18   certification concave part having a length less than the first

19   length;

20   an EX-OR calculation means for calculating an exclusive

21   OR of the first binary signal and the second binary signal;

22   and

23   a judging means for judging, according to the calculated

24   exclusive OR, whether the certification convex part and the

25   certification concave part exist on the optical disc with a

26   predetermined distance therebetween.

1   15. A reproduction apparatus that reproduces an optical disc,

2   a pit string including concave parts and convex parts being

44

3   formed on the optical disc, each of the concave parts and convex

4   parts being coated with a reflection layer and having a length

5   within a range from a first length to a second length,

6   the reproduction apparatus comprising:

7   a signal reproduction means for generating an RF signal

8   by reading a pit string on the optical disc using laser light;

9   a judging means for judging whether (1) a concave part

10   having a third length or (2) a pit string having the third

11   length and including an uncoated convex part from which the

12   reflection layer is removed exists on the optical disc, by

13   checking a length of each low section of the RF signal; and

14   a determining means for determining that the optical

15   disc is original if a judgement result by the judging means

16   is affirmative.

1   16. A disc identifier selecting apparatus that selects a pit

2   string formed on an optical disc as a disc identifier, comprising:

3   a signal reproduction means for generating an RF signal

4   by reading a pit string on the optical disc using laser light,

5   the RF signal including a first peak and a second peak, the

6   first peak corresponding to a convex part having a length within

7   a range from a first length to a second length, the second

8   peak corresponding to a convex part having a length less than

9   the first length;

10   a first binary signal generating means for converting

11   the RF signal into a first binary signal using a first threshold

45

12 value, the first binary signal including a plurality of high

13 sections and a plurality of low sections, the first threshold

14 value being lower than a level of the second peak;

15   a second binary signal generating means for converting

16 the RF signal into a second binary signal using a second threshold

17 value, the second binary signal including a plurality of high

18 sections and a plurality of low sections, the second threshold

19 value being lower than a level of the first peak and higher

20 than the level of the second peak; and

21   a selecting means for selecting a pit string as the

22 disc identifier by judging whether a difference in length between

23 a low section of the first binary signal and a low section

24 of the second binary signal exceeds a predetermined length.

1 17. The disc identifier selecting apparatus of Claim 16,

2   wherein the first binary signal includes a low section

3 corresponding to a concave part sandwiched between convex parts,

4 each of which has a length within the range from the first

5 length to the second length, and

6   the second binary signal includes a low section

7 corresponding to a concave part sandwiched between convex parts,

8 each of which has a length less than the first length.